Historical Wetlands of the Southern California Coast An Atlas of US Coast Survey T-Sheets, 1851-1889

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1911

The Ballona wetlands (shown below) were dominated at this time by vegetated wetlands (70%), as indicated by horizontal lines with occasional vertical “tufts.” Significant unvegetated areas are shown, including tidal flat (16%) and salt flat (8%), with smaller areas of open water ponds (3%). Several different representations are used to depict these areas, suggesting that the marshland exhibited a range of hydrologic regimes with varying degrees of surface water persistence. There are also some topological and symbolic anomalies, making a few interpretations challenging.

The enclosed, stippled areas indicate dry pannes or salt flats. Enclosed areas with multiple concentric internal lines indicate the presence of surface water. According to USCS conventions (and affirmed on other T-sheets in the region), this pattern should refer to freshwater ponds, which is plausible for the y-shaped pond near the mouth of Ballona Creek, but seems unlikely for the features in the middle of the marsh, away from presumable freshwater input (and with the lagoon mouth open to the tides). The two elongate ponds along the south edge bluffs [Area B] could probably be termed salinas (salt ponds), as they are depicted equivalently to such features in South San Francisco Bay (Collins and Grossinger 2004). These would receive water only from extreme high tides and produce evaporative salts in late summer.

Definitive subtidal area (defined by the line of low water) accounts for just 3% of the system. However, the exact terminus of subtidal channels is imprecise in some places because of the difficulty of depicting multiple parallel lines in small channels. The line of mean lower low water also stops abruptly at one point. As a result, there may have been somewhat more subtidal area (e.g., subtidal channel may have extended some distance upstream towards Ballona Creek). But the predominant pattern is large intertidal areas with relatively narrow subtidal channels. The lagoon opening is narrow enough that it may have been subject to frequent closure.

Bellona [sic] Creek and a smaller tributary enter the marsh from the east. An unusual symbol type that looks like miniature trees is shown extending along the creek's tidal course. Based on their position and similarity to other 19th-century map symbols, these symbols may indicate taller marsh vegetation, such as willows, tules, or cattails. This would suggest a strong fresh to brackish gradient towards the creek mouth. This symbol is also used for a much smaller area to the north, where a small channel emerges from the marsh plain and terminates in a small pond. This depiction may indicate a spring or unshown tributary near the marsh margin, creating a brackish channel with willows (and/or tules).

In 1876, the marsh has a single tidal source, at the northwestern edge of the bluffs. The entry subtidal channel runs parallel to the coastline between the outer beach and an inner line of dunes, which is broken through by channel branches at three major points. The southernmost branch connects to a narrow tidal channel and upland tributary along the bluffs; this may be a formerly larger upland drainage channel, now mostly abandoned. As with all T-sheets, much more understanding of the wetland characteristics and processes could be obtained by integrating other historical data sources.
For example, one secondary source is the 1887 USCGS resurvey that was prodded by the proposed development of a port at Ballona. The map mostly reproduces the earlier survey, while focusing on changes resulting from dredging at the channel mouth. The surveyor, Ferdinand Westdahl, described the dredging operations and sediment dynamics associated with jetty construction in a handwritten note on the map. He noted the difficulty of maintaining the newly excavated channel mouth, stating that "the channel between the jetties, instead of scouring as it was expected to do, filled up so as to leave but a narrow channel at low water."

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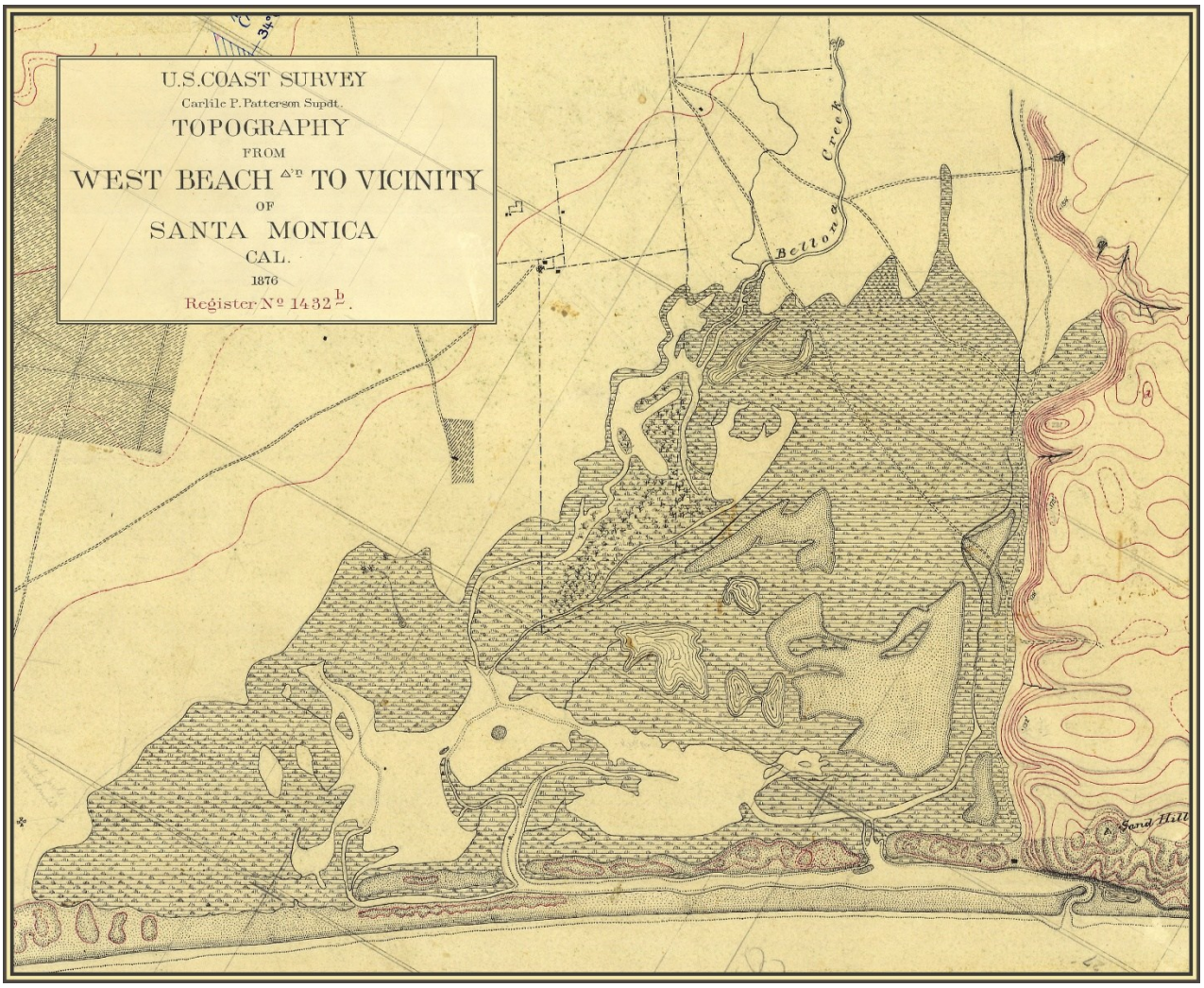
Reference:

https://ftp.sccwrp.org/pub/download/DOCUMENTS/TechnicalReports/589_SoCalTsheetAtlas.pdf


U.S.COAST SURVEY
Carlile P. Patterson Supdt.
TOPOGRAPHY
FROM
WEST BEACH AND TO VICINITY
OF
SANTA MONICA
CAL.
1876
Register No 1432 b.
Bellona Creek
Sand Hill

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The Ballona wetlands (shown at right) were dominated at this time by vegetated wetlands (70%), as indicated by horizontal lines with occasional vertical "tufts." Significant unvegetated areas are shown, including tidal flat (16%) and salt flat (8%), with smaller areas of open water ponds (3%). Several different representations are used to depict these areas, suggesting that the marshland exhibited a range of hydrologic regimes with varying degrees of surface water persistence. There are also some topological and symbolic anomalies, making a few interpretations challenging.

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